

REMARKS/ARGUMENTS

Claims 1 and 3-46 are pending in the application; the status of the claims is as follows:

Claims 6-46 are withdrawn from consideration.

Claims 1, 3, and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Published Application No. 10-197827 (A) to Yoshihiro ("Yoshihiro") in view of U.S. Patent No. 6,118,586 to Tanabe et al ("Tanabe").

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshihiro and Tanabe as applied to claims 1, 3, and 4 above, and further in view of U.S. Patent No. 6,102,545 to Ogino ("Ogino").

To date, no Notice of Draftsperson's Patent Drawing Review has been received. Applicants respectfully request receipt of this document when it becomes available. Please note that the original drawings filed in the patent application are "formal" drawings.

35 U.S.C. § 103(a) Rejections

The rejection of claims 1, 3, and 4 under 35 U.S.C. § 103(a), as being unpatentable over Yoshihiro in view of Tanabe, is respectfully traversed based on the following.

Yoshihiro shows a diffraction grating 102 adjacent to a "double refraction layer" 103. Tanabe shows a glass substrate having a pattern of projections and recesses adjacent to a liquid crystal layer 6. The liquid crystal layer is held in place by a second substrate 3. The second transparent substrate may be 1mm in thickness and may be made of plastic, such as an acrylic resin (col. 4, lines 34-39).

In contrast to the cited references, claim 1 includes:

a diffractive optical element layer formed out of an optically substantially isotropic transparent sheet and having a diffraction grating surface; ...

wherein the diffractive optical element layer is made of a thermoplastic resin and is 0.1 to 1 mm thick.

The Office Action states:

Tanabe discloses (col. 4, line 34 – col. 5, line 56) that a transparent substrate made of plastic such as polycarbonate or polyolefin (thermoplastic material) having a thickness of about 1 mm. Because the diffractive optical element layer formed from an optically substantially isotropic sheet, so that the material of the transparent substrate also can be used for the diffractive optical element layer. As the common knowledge, the material of polycarbonate, polyolefin and acrylic resin are thermoplastic material having the property that repeatedly soften when heated and harden when cooled and easier molding.

There is no suggestion in the cited references to support this statement. In fact, although Tanabe mentions the use of polyolefin and polycarbonate for the first substrate (col. 4, lines 1-5), all examples use glass having thicknesses of 0.5 or 1 mm (col. 12, line 38, col. 14, line 8, col. 15, line 36). In addition, a specific thickness is stated for the second substrate (col. 4, lines 34-39). This strongly indicates that Tanabe et al. did not believe that the plastic materials were suitable for the first substrate at the thicknesses used in Tanabe. Thus, rather than suggesting the claimed limitation, Tanabe teaches away from using a thermoplastic substrate having a diffraction pattern that is 0.1 to 1mm thick. Thus, neither of the cited references, singularly or in combination, shows or suggests the claimed structure.

As noted in Applicants' prior response, by using a diffractive optical element layer made of thermoplastic, the structure of claim 1 minimizes manufacturing costs (written description page 17, lines 20-22, paragraph 36). In addition, as noted in the written description at page 20, line 13 – page 23, line 8 (paragraphs 41-45), no substrate material

is free of birefringent effects. Birefringence in the substrate degrades the performance of a separator. By providing a thin thermoplastic substrate as defined in claim 1, the performance degradation of the separation device due to birefringence of the substrate is minimized. The cited references do not recognize or discuss this effect at all, much less suggest a solution to this problem.

Thus, the cited references, singularly or in combination, do not show or suggest a "diffractive optical element layer ... having a diffraction grating surface ... wherein the diffractive optical element layer is made of a thermoplastic resin and is 0.1 to 1 mm thick." To support a *prima facie* case for obviousness, the combined references must show or suggest every limitation of the claim. MPEP §2143.03. Therefore, claim 1 is non-obvious over the cited references. Claims 3 and 4 are dependent upon claim 1. A claim that depends from a non-obvious claim is also non-obvious. MPEP §2143.03. Therefore, claims 1, 3 and 4 are patentably distinct from the cited references.

Accordingly, it is respectfully requested that the rejection of claims 1, 3, and 4 under 35 U.S.C. § 103(a) as being unpatentable over Yoshihiro in view of Tanabe, be reconsidered and withdrawn.

The rejection of claim 5 under 35 U.S.C. § 103(a), as being unpatentable over Yoshihiro and Tanabe as applied to claims 1, 3, and 4 above, and further in view of Ogino, is respectfully traversed based on the following.

Ogino shows that it is desirable for a double-side lenticular lens 17 (18, 19 FIG. 21) to have a linear expansion coefficient approximately equal to the glass substrate on which it is mounted (col. 29, lines 48-61) and that glass substrate should have a coefficient approximately equal to the LCD panel 3 (col. 30, lines 5-13). However, as with Yoshihiro and Tanabe, Ogino does not show or suggest a "diffractive optical element layer ... having a diffraction grating surface ... wherein the diffractive optical element layer is made of a thermoplastic resin and is 0.1 to 1 mm thick." Claim 5 is dependent upon claim 1 and includes every limitation of claim 1. Thus, the cited references,

singularly or in combination, do not show or suggest every element of claim 5. Therefore, claim 5 is non-obvious over the cited references.

Accordingly, it is respectfully requested that the rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Yoshihiro and Tanabe as applied to claims 1, 3, and 4 above, and further in view of Ogino, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.


If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee,

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Respectfully submitted,

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